

## CLAIMS

### WHAT IS CLAIMED IS:

1. An isolated nucleic acid molecule comprising a polynucleotide having a nucleotide sequence at least 95.0% identical to a sequence selected from the group  
5 consisting of:
  - (a) a polynucleotide encoding a polypeptide of SEQ ID NO:2 or the cDNA sequence included in ATCC Deposit No: PTA-3161, having G-protein coupled receptor activity;
  - (b) a polynucleotide which is a variant of SEQ ID NO:1;
  - 10 (c) a polynucleotide which is an allelic variant of SEQ ID NO:1;
  - (d) an isolated polynucleotide comprising nucleotides 540 to 1523 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 329 of SEQ ID NO:2 minus the start codon;
  - (e) an isolated polynucleotide comprising nucleotides 537 to 1523 of SEQ ID  
15 NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 1 to 329 of SEQ ID NO:2 including the start codon;
  - (f) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:1; and
  - (g) a polynucleotide capable of hybridizing under stringent conditions to any  
20 one of the polynucleotides specified in (a)-(f), wherein said polynucleotide does not hybridize under stringent conditions to a nucleic acid molecule having a nucleotide sequence of only A residues or of only T residues.
2. The isolated nucleic acid molecule of claim 1, wherein the polynucleotide fragment comprises a nucleotide sequence encoding a human G-  
25 protein coupled receptor protein.
3. A recombinant vector comprising the isolated nucleic acid molecule of claim 1.
4. A recombinant host cell comprising the vector sequences of claim 3.
5. An isolated polypeptide comprising an amino acid sequence at least  
30 95.0% identical to a sequence selected from the group consisting of:
  - (a) a full length protein of SEQ ID NO:2 or the encoded sequence included in ATCC Deposit No: PTA-3161;

- (b) a variant of SEQ ID NO:2;
  - (c) an allelic variant of SEQ ID NO:2;
  - (d) a polypeptide comprising amino acids 2 to 329 of SEQ ID NO:2, wherein said amino acids 2 to 329 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;
  - (e) a polypeptide comprising amino acids 1 to 329 of SEQ ID NO:2; and
  - (f) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-3161.
6. An isolated antibody that binds specifically to the isolated polypeptide of claim 5.
7. A recombinant host cell that expresses the isolated polypeptide of claim 5.
8. A method of making an isolated polypeptide comprising:
- (a) culturing the recombinant host cell of claim 7 under conditions such that said polypeptide is expressed; and
  - (b) recovering said polypeptide.
9. The polypeptide produced by claim 8.
10. A method for preventing, treating, or ameliorating a medical condition, comprising the step of administering to a mammalian subject a therapeutically effective amount of the polypeptide of claim 5 or the polynucleotide of claim 1.
11. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
- (a) determining the presence or absence of a mutation in the polynucleotide of claim 1; and
  - (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or absence of said mutation.
12. A method of diagnosing a pathological condition or a susceptibility to a pathological condition in a subject comprising:
- (a) determining the presence or amount of expression of the polypeptide of claim 5 in a biological sample; and
  - (b) diagnosing a pathological condition or a susceptibility to a pathological condition based on the presence or amount of expression of the polypeptide.

13. An isolated nucleic acid molecule consisting of a polynucleotide having a nucleotide sequence selected from the group consisting of:

- (a) a polynucleotide encoding a polypeptide of SEQ ID NO:2;
- (b) an isolated polynucleotide consisting of nucleotides 540 to 1523 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 329 of SEQ ID NO:2 minus the start codon;
- (c) an isolated polynucleotide consisting of nucleotides 537 to 1523 of SEQ ID NO:1, wherein said nucleotides encode a polypeptide corresponding to amino acids 2 to 329 of SEQ ID NO:2 including the start codon;
- (d) a polynucleotide encoding the HGPRBMY25 polypeptide encoded by the cDNA clone contained in ATCC Deposit No. PTA-3161; and
- (e) a polynucleotide which represents the complimentary sequence (antisense) of SEQ ID NO:41.

14. The isolated nucleic acid molecule of claim 13, wherein the polynucleotide comprises a nucleotide sequence encoding a human G-protein coupled receptor protein.

15. A recombinant vector comprising the isolated nucleic acid molecule of claim 14.

16. A recombinant host cell comprising the recombinant vector of claim 15.

17. An isolated polypeptide consisting of an amino acid sequence selected from the group consisting of:

- (a) a full length protein of SEQ ID NO:2;
- (b) a polypeptide corresponding to amino acids 2 to 329 of SEQ ID NO:2, wherein said amino acids 2 to 329 comprise a polypeptide of SEQ ID NO:2 minus the start methionine;
- (c) a polypeptide corresponding to amino acids 1 to 329 of SEQ ID NO:2; and
- (d) a polypeptide encoded by the cDNA contained in ATCC Deposit No. PTA-3161.

18. The method for preventing, treating, or ameliorating a medical condition of claim 10, wherein the medical condition is selected from the group

consisting of an immune condition; an inflammatory disease; an inflammatory disease wherein G-protein coupled receptors, either directly or indirectly, are involved in disease progression; a reproductive disorder; a female reproductive disorder; a male reproductive disorder; a neural disorder; a pulmonary disorder; and a cancer.

5           19.     A cell comprising the polypeptide of claim 9 and a member selected from the group consisting of NFAT/CRE, and NFAT G alpha 15.

          20.     A method of screening for candidate compounds capable of modulating activity of a G-protein coupled receptor-encoding polypeptide, comprising:

10           (a)     contacting a test compound with the cell according to claim 19; and  
          (b)     selecting as candidate modulating compounds those test compounds that modulate activity of the G-protein coupled receptor polypeptide.

          21.     A method for preventing, treating, or ameliorating a medical condition,  
15     comprising the step of administering to a mammalian subject a therapeutically effective amount of the antibody of claim 6, wherein the medical condition is selected from the group consisting of an immune condition; an inflammatory disease; an inflammatory disease wherein G-protein coupled receptors, either directly or indirectly, are involved in disease progression; a reproductive disorder; a female  
20     reproductive disorder; a male reproductive disorder; a neural disorder; a pulmonary disorder; and a cancer.